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Aerospace Medical Association

72nd Annual Scientific Meeting

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Development of Regulations for Civilian Use of NVGs

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Crew Systems Department
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Federal Aviation Administration
Rotorcraft Directorate

Introduction

- **Purpose**
  - Provide an insight into the development of products that the FAA may use in formulating regulations for governing the civil use of NVGs
- **Briefers**
  - Lorry: Co-chair of Special Committee 196
  - Chuck: Member of SC 196 and several working groups

Historical Overview

- Increased requests from civil operators for FAA approval and certification
- Studies accomplished to determine feasibility
- Supplemental Type Certificate (STC) approval lengthy and expensive
- Formal FAA approval and certification will require integration among FARs that address all areas of aviation
  - Shorten process time
  - Consolidate various efforts

Current and Projected Use of NVGs

Operation	*USA*	*Foreign*	*Comments*
Part 91 General Aviation	Limited. Operating without FAA approval.	Limited. Operating with Transport Canada approval.	Increased interest
Part 121 Air Carrier	None	None	Limited interest
Part 133 External Load	None	None	Increased interest
Part 135 Commercial	Limited. Operating with FAA approval.	Limited. Operating with approval.	Increased interest
Part 137 Aerial Spraying	None	None	Increased interest
Public Use Law enforcement, aerial spraying, etc.	Increased use. Not under FAA control.	None. Regulated by civil aviation authority.	Increased interest in coordinating FAA approval.

Special Committee 196

- Radio Technical Commission of America (RTCA) tasked by FAA to form a special committee
  - Joins industry, operator and regulator in the development of consensus based minimum operational standards
  - Products may be used to help formulate FAA regulations
  - Harmonization with Europe and Canada required
- RTCA approved Special Committee 196 (SC-196) in November 1999
  - Initial plenary conducted December 9-10 1999
  - SC-196 Co-Chairs appointed
    - Lorry Faber – FAA
    - Jim Winkel – Northrop Grumman/Litton

SC-196 Membership

Organization	Government	Industry	Operator	Comment
Federal Aviation Administration	X			Standards, Safety, Operations, Manufacturing, Certification
Transport Canada	X			Certification, Operations
Civil Aviation Authority	X			United Kingdom, Australia
Joint Aviation Authority	X			Multiple European Member Nations
Airborne Law Enforcement Association			X	International Public-Use Aerial Law Enforcement Association
US Army	X		X	PM-NV/RSTA Fort Belvoir, Night Vision Devices Branch Ft. Rucker
US Air Force	X		X	Air Force Research Lab WPAFB & Mesa, HQ USAF Pentagon, Air Force Flight Standards
US Navy	X		X	Naval Air Systems Command, Naval Air Warfare Center
Bell, Eurocopter, Agusta, Sikorsky, Boeing		X		Aircraft Manufacturers
Multiple Aircraft Lighting OEMs		X		NVG Compatible Aircraft Lighting
Multiple NVG Manufacturer's		X		Domestic and Foreign
Multiple Federal Agencies			X	Customs, Border Patrol, DOE
Multiple Flight Training Vendors		X		Currently providing public-use, part 91 and part 135 training
Serviceability OEM		X		Continued Airworthiness
Head-Up Display OEM		X		
Existing NVG Operators			X	Public-use, Part 135, Foreign
Special Interest Groups		X	X	HAI, AOPA, ATA

SC-196 Working Groups

Working Groups	*Products*
WG-1 Concept of Operations	Operational concepts and requirements. Rotor wing and fixed wing. General aviation through commercial. Forms basis for other documents.
WG-2 Night Vision Goggles	Minimum operating performance standards for NVGs.
WG-3 NVIS Lighting	Minimum operating performance standards for NVIS lighting.
WG-4 Continued Airworthiness	Minimum operating performance standards for continued airworthiness.
WG-5 Training	Training guidelines and other considerations.

Philosophy

- **Define NVIS as integration of all components required for safe and effective use of NVGs**
  - NVGs
  - NVIS lighting
  - Aircraft
    - Transparencies
    - Ergonomics
- **Integrated system approach for design, installation and testing**
- **Use lessons learned from military**
  - Civil flight profiles can be similar in complexity

MOPS Document Overview

Sections	*Content*
1. Introduction	Purpose, scope and rationale for requirements. Operational goals. Definitions and assumptions.
2. NVG Performance Requirements and Test Procedures	General guidance and minimum performance standards. Recommended test procedures.
3. NVIS Lighting Performance Requirements and Test Procedures	General guidance and minimum performance standards. Recommended test procedures.
4. Installed NVIS Performance and Test Procedures	Minimum performance standards and recommended test procedures for the integrated system after installation. Supplements, complements and/or validates previous testing.
5. Continued Airworthiness	Procedures needed to ensure NVIS continues to meet minimum performance standards once in operational use.

Status of RTCA Products

Product	*Status*
CONOPS	Published. RTCA DO-268 (www.rtca.org).
MOPS	Estimated completion date Sep 2001.
Training Documents	Estimated completion date Dec 2001.

Summary

SC-196 is tasked with producing documents that may be used by the FAA for the development of rules and regulations governing the use of NVGs in the National Airspace System. These products are nearing completion.